

Docket No. AUS920010565US1

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Austen et al.

Serial No. 09/925,584

Filed: August 9, 2001

For: Method, System, and Product for
Booting a Partition Using One of
Multiple, Different Firmware Images§
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Group Art Unit: 2115

Examiner: Suryawanshi, Suresh

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By:


Amelia C. Turner

APPEAL BRIEF (37 C.F.R. 41.37)

This brief is in furtherance of the Notice of Appeal, filed in this case on February 17, 2005.

The fees required under § 41.20(B)(2), and any required petition for extension of time for filing this
brief and fees therefore, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.(Appeal Brief Page 1 of 24)
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REAL PARTY IN INTEREST

The real party in interest in this appeal is the following party: International Business Machines Corporation, as reflected in the Assignment recorded on August 9, 2001, at Reel 012081, Frame 0729.

RELATED APPEALS AND INTERFERENCES

With respect to other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal, there are no such appeals or interferences.

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STATUS OF CLAIMS

A. TOTAL NUMBER OF CLAIMS IN APPLICATION

Claims in the application are: 1-24.

B. STATUS OF ALL THE CLAIMS IN APPLICATION

1. Claims canceled: None.
2. Claims withdrawn from consideration but not canceled: None.
3. Claims pending: 1-24.
4. Claims allowed: None.
5. Claims rejected: 1-24.
6. Claims objected to: None.

C. CLAIMS ON APPEAL

The claims on appeal are: 1-24.

STATUS OF AMENDMENTS

There are no amendments after the Final Rejection that was mailed November 17, 2004.

SUMMARY OF CLAIMED SUBJECT MATTER

Applicants' independent claim 1 describes a method in a logically partitioned computer system including a plurality of different partitions. (Specification page 4, lines 3-6.) The method comprises storing a plurality of different firmware images in the computer system. (Specification page 6, lines 11-13.) Each one of the plurality of different firmware images is capable of being executed during a power-on process to boot the computer system. (Specification page 14, lines 21-26, and page 15, lines 18-28.) One of the plurality of partitions is booted utilizing one of the plurality of firmware images without rebooting other ones of the plurality of partitions. (Specification page 4, lines 3-6, and page 15, lines 14-17.) The one of the plurality of partitions is rebooted utilizing the one of the plurality of firmware images prior to booting an operating system in the one of the plurality of partitions. (Specification page 11, line 16, through page 12, line 14.)

Applicants' claim 7 depends from claim 1 and further describes providing a listing of the plurality of partitions, providing a listing of the plurality of different firmware images, receiving a selection of one of the plurality of partitions that is to be rebooted, and receiving a selection of one of the plurality of firmware images to use to reboot the selected one of the plurality of partitions. (Specification page 14, lines 13-26, and page 17, lines 18-30.)

Applicants' claim 8 depends from claim 7 and further describes setting an indicator in a partition table associated with the selected one of the plurality of partitions, the indicator indicating that the one of the plurality of partitions has been selected to be rebooted, storing an identification of the selected one of the plurality of firmware images in the partition table associated with the selected one of the plurality of partitions. (Specification page 15, lines 7-14.)

Applicants' independent claim 9 describes a computer program product in a logically partitioned computer system including a plurality of different partitions. (Specification page 4, lines 3-6.) The product comprises instruction means for storing a plurality of different firmware images in the computer system. (Specification page 6, lines 11-13.) Each one of the plurality of different firmware images is capable of being executed during a power-on process to boot the computer system. (Specification page 14, lines 21-26, and page 15, lines 18-28.) The product

also comprises instruction means for rebooting one of the plurality of partitions utilizing one of the plurality of firmware images without rebooting other ones of the plurality of partitions. (Specification page 4, lines 3-6, and page 15, lines 14-17.) The one of the plurality of partitions is rebooted utilizing the one of the plurality of firmware images prior to booting an operating system in the one of the plurality of partitions. (Specification page 11, line 16, through page 12, line 14.)

Applicants' claim 15 depends from claim 9 and further describes instruction means for providing a listing of the plurality of partitions, instruction means for providing a listing of the plurality of different firmware images, instruction means for receiving a selection of one of the plurality of partitions that is to be rebooted, and instruction means for receiving a selection of one of the plurality of firmware images to use to reboot the selected one of the plurality of partitions. (Specification page 14, lines 13-26, and page 17, lines 18-30.)

Applicants' claim 16 depends from claim 15 and further describes instruction means for setting an indicator in a partition table associated with the selected one of the plurality of partitions, the indicator indicating that the one of the plurality of partitions has been selected to be rebooted, and instruction means for storing an identification of the selected one of the plurality of firmware images in the partition table associated with the selected one of the plurality of partitions. (Specification page 15, lines 7-14.)

Applicants' independent claim 17 describes a logically partitioned computer system including a plurality of different partitions. (Specification page 4, lines 3-6.) The system comprises a plurality of different firmware images that are stored in the computer system. (Specification page 6, lines 11-13.) Each one of the plurality of different firmware images is capable of being executed during a power-on process to boot the computer system. (Specification page 14, lines 21-26, and page 15, lines 18-28.) The computer system is for rebooting one of the plurality of partitions utilizing one of the plurality of firmware images without rebooting other ones of the plurality of partitions. (Specification page 4, lines 3-6, and page 15, lines 14-17.) The one of the plurality of partitions is rebooted utilizing the one of the plurality of firmware images prior to booting an operating system in the one of the plurality of partitions. (Specification page 11, line 16, through page 12, line 14.)

Applicants' claim 23 depends from claim 17 and further describes a listing of the plurality of partitions, a listing of the plurality of different firmware images, means for receiving

a selection of one of the plurality of partitions that is to be rebooted, and means for receiving a selection of one of the plurality of firmware images to use to reboot the selected one of the plurality of partitions. (Specification page 14, lines 13-26, and page 17, lines 18-30.)

Applicants' claim 24 depends from claim 23 and further describes an indicator in a partition table associated with the selected one of the plurality of partitions being set, the indicator indicating that the one of the plurality of partitions has been selected to be rebooted, and an identification of the selected one of the plurality of firmware images being stored in the partition table associated with the selected one of the plurality of partitions. (Specification page 15, lines 7-14.)

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

A. GROUND OF REJECTION 1 (Claims 1-24)

Claims 1-24 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,690,400 issued to *Moayyad* in view of U.S. Patent 6,725,317 issued to *Bouchier*.

ARGUMENT

A. GROUND OF REJECTION 1 (Claims 1-24)

Claims 1-24 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,690,400 issued to *Moayyad* in view of U.S. Patent 6,725,317 issued to *Bouchier*. This position is not well founded.

Moayyad describes a computer system that includes one or more cabinets. Each cabinet can include one or more partitions. A Flash Vos GUI 10 is described that allows users to tailor the system to manipulate and share partitions and cabinets. Figure 1 of *Moayyad* describes the boot view of the GUI 10. This view apparently is displayed when the computer system is booted. A user can then change or boot operating systems in the different partitions using this view of Figure 1.

Bouchier teaches a system that includes multiple partitions. A partition is defined by *Bouchier* as being a grouping of cell boards with each partition comprising at least one cell. Each partition runs its own copy of the same system firmware. Thus, there are separate copies of the same image. This permits multiple copies of the operating system to run independently of each other. In this manner, a fatal error in one partition would not affect the other partitions.

Applicants claim a logically partitioned computer system that includes a plurality of different partitions. Applicants also claim storing a plurality of different firmware images in the computer system.

The Examiner states that *Moayyad* teaches storing a plurality of firmware images in the computer system by describing different operating system versions. The Examiner refers to Figure 1, column 1, lines 31-34, and column 2, lines 18-23.

The referenced sections of *Moayyad* do teach different operating systems. However, *Moayyad* does not teach the features claimed by Applicants because Applicants claim a plurality of different firmware images, not different operating systems. *Moayyad* teaches different operating systems and does not teach different firmware images.

Moayyad does not describe a plurality of different firmware images. *Moayyad* teaches a BIOS transferring or booting an operating system. Column 2, lines 14-16. This BIOS is a firmware image. "BIOS" is defined by Microsoft Computer Dictionary, Fourth Edition,

published 1999 by Microsoft Press as being "an acronym for basic input/output system. On PC-compatible computers, the set of essential software routines that tests hardware at startup, starts the operating system, and supports the transfer of data among hardware devices." *Moayyad* does not describe more than one version of BIOS, or firmware. Thus, *Moayyad* does not describe, teach, or suggest a plurality of different firmware images.

Applicants claim a plurality of different firmware images. *Moayyad* teaches multiple operating systems. A firmware image is not the same thing as an operating system. A system having multiple operating systems could be booted from the same firmware image. In this system, there would be one firmware image and multiple operating systems. In fact, this is the type of system taught by *Moayyad*.

The Examiner also states that *Bouchier* teaches each partition running its own copy of firmware and operating system. *Bouchier* does teach separate copies of a firmware image; however, these are copies of the same firmware image. Applicants claim a plurality of different images, not separate copies of the same image. *Bouchier* teaches multiple copies of one firmware image. All of the copies in *Bouchier* are the same firmware image. In *Bouchier*, there is not a plurality of different firmware images.

The combination of *Moayyad* and *Bouchier* would produce a system that includes multiple partitions having multiple operating systems. Each operating system would be booted using the same firmware image. The combination of *Moayyad* and *Bouchier* does not describe, teach, or suggest Applicants' claims because Applicants claim storing a plurality of different firmware images. Neither *Moayyad* nor *Bouchier*, singly or in combination, teaches a plurality of different firmware images.

Applicants claim each one of the plurality of different firmware images being capable of being executed during a power-on process to boot the computer system. *Moayyad* does not describe a plurality of different firmware images. *Moayyad* describes cabinets which may execute different operating systems. *Moayyad* also describes booting the entire system first to produce the GUI 10 screen. Presumably, a firmware image is used to boot the system to produce this screen although *Moayyad* does not describe this firmware image. Nothing in *Moayyad* describes different firmware images. Nothing describes different firmware images where each image is capable of booting the entire computer system that includes the partitions. *Moayyad* does not teach booting a cabinet using a firmware image that is capable of being executed during

a power-on process to boot the computer system that includes that cabinet as well as the other cabinets.

The Examiner states that *Moayyad* teaches rebooting one of the partitions utilizing one of the plurality of different firmware images at column 5, lines 9-17 and 24-35, column 7, lines 33-55, and Figure 1. Column 5, lines 9-17, teaches defining cabinets in a computer system with each cabinet containing one or more partitions of software where the software includes an operating system. Column 5, lines 24-35 teaches a cabinet containing operating systems and booting the cabinet. A cabinet is booted by booting its operating system.

These sections do not teach rebooting a partition using one of a plurality of different firmware images without rebooting other partitions where the rebooting of the partition is prior to booting an operating system in the partition. As described above, *Moayyad* does not teach different firmware images. Therefore, *Moayyad* does not teach rebooting a partition using one of a plurality of different firmware images without rebooting other partitions where the rebooting of the partition is prior to booting an operating system in the partition.

Column 7, lines 33-55, describes the initiation of the GUI 10. This section of *Moayyad* describes an operating system booting. This section does not describe the execution of a firmware image that takes place prior to the execution of an operating system. Further, this section of *Moayyad* describes selecting a cabinet to boot by selecting the Boot Cabinet Button. In this manner, operating systems can be swapped in the cabinet. This section teaches booting an operating system, not booting a partition using one of a plurality of different firmware images prior to booting an operating system in the partition.

Moayyad teaches booting an operating system in a cabinet or swapping operating systems in a cabinet. This is not the same as booting a partition using a firmware image. This is not the same as rebooting a partition using a firmware image prior to booting an operating system in that partition. Although *Moayyad* does not describe it, the cabinet must have been booted using a firmware image before an operating system could be booted in the cabinet. *Moayyad* describes booting an operating system in the cabinet, not booting the cabinet using a firmware image. Presumably, the cabinets were booted using the single firmware image used to boot the GUI 10 when the GUI 10 was initiated.

Applicants' claims 7, 15, and 23 further describe providing a listing of the plurality of different firmware images. The Examiner states that *Moayyad* teaches providing a listing of the

plurality of different firmware image at column 4, line 10, referring to the “boot option”. This section of *Moayyad* describes the operating system tools and functions as including a boot option.

A boot option is not a listing of any sort. A boot option is not a listing of firmware images. A boot option is not a listing of different firmware images. Therefore, *Moayyad* does not teach a listing of a plurality of different firmware images.

Applicants’ claims 8, 16, and 24 further describe a partition table in which is stored an identification of the selected one of the plurality of firmware images. The Examiner states that *Moayyad* teaches storing an identification of the selected one of the plurality of firmware images at column 5, lines 24-35, column 8, lines 30-35, and column 7, lines 41-55.

Column 5, lines 24-35, teaches a cabinet capable of containing, through the use of a virtual table of content pointers, operating systems, software, databases, and memory. This section does not teach storing an identification of a firmware image.

Column 7, lines 41-55, teaches an operating system being booted being either a default operating system or a selected operating system. An operating system is not a firmware image. Therefore, teaching that a booting operating system is either a default operating system or selected operating system does not teach storing an identification of a firmware image.

Column 8, lines 30-35, teaches saving cabinet configuration. Nothing in this section teaches storing an identification of a firmware image.

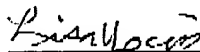
Applicants claim a partition table in which is stored an identification of the selected firmware image. The cited sections of *Moayyad* do not describe, teach, or suggest a partition table that includes an identification of a firmware image.

B. CONCLUSION

The combination of *Moayyad* and *Bouchier* does not render Applicants' claims unpatentable because the combination does not describe, teach, or suggest a plurality of different firmware images, each one of the different firmware images being capable of being executed during a power-on process to boot the computer system, rebooting one of the plurality of partitions utilizing one of the plurality of firmware images without rebooting other ones of the plurality of partitions, rebooting the one of the plurality of partitions utilizing the one of the plurality of firmware images prior to booting an operating system in the one of the plurality of partitions.

Further, the combination of *Moayyad* and *Bouchier* does not render Applicants' claims unpatentable because the combination does not describe, teach, or suggest the additional features of a listing of the plurality of different firmware images, or an identification of the selected one of the plurality of firmware images being stored in a partition table.

Therefore, Applicants' claims are believed to be patentable over the cited prior art.



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CLAIMS APPENDIX

The text of the claims involved in the appeal reads:

1. A method in a logically partitioned computer system including a plurality of different partitions, said method comprising the steps of:

storing a plurality of different firmware images in said computer system, each one of said plurality of different firmware images capable of being executed during a power-on process to boot said computer system; and

rebooting one of said plurality of partitions utilizing one of said plurality of firmware images without rebooting other ones of said plurality of partitions, rebooting said one of said plurality of partitions utilizing said one of said plurality of firmware images prior to booting an operating system in said one of said plurality of partitions.
2. The method according to claim 1, further comprising the step of selecting said one of said plurality of firmware images to use to reboot said one of said plurality of partitions.
3. The method according to claim 1, further comprising the step of associating a different, unique firmware image identifier with each of said plurality of firmware images.
4. The method according to claim 1, further comprising the steps of:

associating a different, unique firmware image identifier with each of said plurality of firmware images;

associating a different partition table with each one of said plurality of partitions;

providing an indicator within each said different partition table, said indicator indicating whether one of said plurality of partitions that is associated with said partition table needs to be rebooted; and

providing an identifier within each said different partition table, said identifier identifying one of said plurality of firmware images.

5. The method according to claim 1, further comprising the steps of:

routinely checking each said partition table to determine whether said indicator included within each said partition table indicates that one of said plurality of partitions associated with each said partition table is to be rebooted;

in response to a determination that an indicator indicates that one of said plurality of partitions needs to be rebooted, rebooting said one of said plurality of partitions having said indicator that indicates said need to be rebooted.

6. The method according to claim 5, further comprising the steps of:

retrieving an identifier from said partition table that includes said indicator that indicates said need to be rebooted, said identifier one of said plurality of firmware images; and

rebooting only said one of said plurality of partitions that includes said indicator that indicates said need to be rebooted utilizing said identifier retrieved from said partition table associated with said one of said plurality of partitions.

7. The method according to claim 1, further comprising the steps of:

providing a listing of said plurality of partitions;

providing a listing of said plurality of different firmware images;
receiving a selection of one of said plurality of partitions that is to be rebooted; and
receiving a selection of one of said plurality of firmware images to use to reboot said
selected one of said plurality of partitions.

8. The method according to claim 7, further comprising the steps of:

setting an indicator in a partition table associated with said selected one of said plurality
of partitions, said indicator indicating that said one of said plurality of partitions has been
selected to be rebooted; and

storing an identification of said selected one of said plurality of firmware images in said
partition table associated with said selected one of said plurality of partitions.

9. A computer program product in a logically partitioned computer system including a
plurality of different partitions, comprising:

instruction means for storing a plurality of different firmware images in said computer
system, each one of said plurality of different firmware images capable of being executed during
a power-on process to boot said computer system; and

instruction means for rebooting one of said plurality of partitions utilizing one of said
plurality of firmware images without rebooting other ones of said plurality of partitions,
rebooting said one of said plurality of partitions utilizing said one of said plurality of firmware
images prior to booting an operating system in said one of said plurality of partitions.

10. The product according to claim 9, further comprising instruction means for selecting said one of said plurality of firmware images to use to reboot said one of said plurality of partitions.

11. The product according to claim 9, further comprising instruction means for associating a different, unique firmware image identifier with each of said plurality of firmware images.

12. The product according to claim 9, further comprising:

instruction means for associating a different, unique firmware image identifier with each of said plurality of firmware images;

instruction means for associating a different partition table with each one of said plurality of partitions;

instruction means for providing an indicator within each said different partition table, said indicator indicating whether one of said plurality of partitions that is associated with said partition table needs to be rebooted; and

instruction means for providing an identifier within each said different partition table, said identifier identifying one of said plurality of firmware images.

13. The product according to claim 9, further comprising:

instruction means for routinely checking each said partition table to determine whether said indicator included within each said partition table indicates that one of said plurality of partitions associated with each said partition table is to be rebooted;

in response to a determination that an indicator indicates that one of said plurality of partitions needs to be rebooted, instruction means for rebooting said one of said plurality of partitions having said indicator that indicates said need to be rebooted.

14. The product according to claim 13, further comprising:

instruction means for retrieving an identifier from said partition table that includes said indicator that indicates said need to be rebooted, said identifier one of said plurality of firmware images; and

instruction means for rebooting only said one of said plurality of partitions that includes said indicator that indicates said need to be rebooted utilizing said identifier retrieved from said partition table associated with said one of said plurality of partitions.

15. The product according to claim 9, further comprising:

instruction means for providing a listing of said plurality of partitions;

instruction means for providing a listing of said plurality of different firmware images;

instruction means for receiving a selection of one of said plurality of partitions that is to be rebooted; and

instruction means for receiving a selection of one of said plurality of firmware images to use to reboot said selected one of said plurality of partitions.

16. The product according to claim 15, further comprising:

instruction means for setting an indicator in a partition table associated with said selected one of said plurality of partitions, said indicator indicating that said one of said plurality of partitions has been selected to be rebooted; and

instruction means for storing an identification of said selected one of said plurality of firmware images in said partition table associated with said selected one of said plurality of partitions.

17. A logically partitioned computer system including a plurality of different partitions, comprising:

a plurality of different firmware images being stored in said computer system, each one of said plurality of different firmware images capable of being executed during a power-on process to boot said computer system; and

said computer system for rebooting one of said plurality of partitions utilizing one of said plurality of firmware images without rebooting other ones of said plurality of partitions, rebooting said one of said plurality of partitions utilizing said one of said plurality of firmware images prior to booting an operating system in said one of said plurality of partitions.

18. The system according to claim 17, further comprising said one of said plurality of firmware images being selected to use to reboot said one of said plurality of partitions.

19. The system according to claim 17, further comprising a different, unique firmware image identifier being associated with each of said plurality of firmware images.

20. The system according to claim 17, further comprising:

a different, unique firmware image identifier being associated with each of said plurality of firmware images;

a different partition table being associated with each one of said plurality of partitions;

an indicator being provided within each said different partition table, said indicator indicating whether one of said plurality of partitions that is associated with said partition table needs to be rebooted; and

an identifier being provided within each said different partition table, said identifier identifying one of said plurality of firmware images.

21. The system according to claim 17, further comprising:

said computer system for routinely checking each said partition table to determine whether said indicator included within each said partition table indicates that one of said plurality of partitions associated with each said partition table is to be rebooted;

in response to a determination that an indicator indicates that one of said plurality of partitions needs to be rebooted, said computer system for rebooting said one of said plurality of partitions having said indicator that indicates said need to be rebooted.

22. The system according to claim 21, further comprising:

an identifier being retrieved from said partition table that includes said indicator that indicates said need to be rebooted, said identifier one of said plurality of firmware images; and

said computer system for rebooting only said one of said plurality of partitions that includes said indicator that indicates said need to be rebooted utilizing said identifier retrieved from said partition table associated with said one of said plurality of partitions.

23. The system according to claim 17, further comprising:
- a listing of said plurality of partitions;
 - a listing of said plurality of different firmware images;
 - means for receiving a selection of one of said plurality of partitions that is to be rebooted;
 - and
 - means for receiving a selection of one of said plurality of firmware images to use to reboot said selected one of said plurality of partitions.

24. The system according to claim 23, further comprising:
- an indicator in a partition table associated with said selected one of said plurality of partitions being set, said indicator indicating that said one of said plurality of partitions has been selected to be rebooted; and
 - an identification of said selected one of said plurality of firmware images being stored in said partition table associated with said selected one of said plurality of partitions.

EVIDENCE APPENDIX

There is no evidence to be presented.

RELATED PROCEEDINGS APPENDIX

There are no related proceedings.